

Comet 55P/Tempel-Tuttle and the Upcoming Leonid Meteor Events

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Using the available observations in 1699, 1865-66, and 1965, we have computed an orbit for the parent body of the Leonid meteors - comet 55P/Tempel-Tuttle. The comet's motion was numerically integrated back in time for two millennia and ephemerides computed for each perihelion return, Chinese observations of the comet in 1366 are well represented and we have identified possible (but not definite) observations of the comet in October 1234 and January 1035. The Leonid meteors have been observed since A.D. 902. Prior to the eighth century, no Leonid meteors should have been visible because the comet's orbit passed too far outside that of the Earth. Using previously recorded accounts of the Leonid meteor showers and storms as a guide, we provide predictions for the forthcoming Leonid displays in November of 1997-1999. For the next 100 years, the 1998 and 1999 events hold the most promise for an impressive Leonid meteor display although there seems little likelihood that the great storms of 1833 and 1966 will be repeated at this apparition.